Farm Policy Impacts on Agriculture

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Introduction

Thank you Chairman and the members of the Subcommittee on General Commodities and Risk of the US House of Representative for your invitation to participate in this hearing on the status of agriculture and the impact of farm policy on agriculture. It is indeed an honor to appear and to interact with the subcommittee.

I have chosen to focus my remarks on the impact of recent farm policy on agriculture and why those impacts have turned out as they have. The written statement is organized as follows: After summarizing the status of selected impacts of recent farm policy, I begin by looking at farm policy objectives and then move to a discussion of the nature of food and agriculture, the expectations or premises that lead to the current policy direction, and why the expectations were likely unrealistic. The concluding remarks and summary section underscore some of the major points discussed in the text. Farm policy includes a wide array of components in addition to commodity policy, but I will limit my discussion primarily to the commodity program portion of farm policy. For the purpose of communicating ideas, farm policy, commodity policy, farm programs, and commodity programs are used interchangeably.

Status of Recent Farm Policy Impacts

- Each year since 1998, with the exception of 2004, between a quarter and a half of all net farm income has come from government payments. One would have to go back to the PIK years in the 1980's to find a time period in which farmers have been so dependent upon government payments for a significant portion of their income.
- For producers of program crops the dependence on government payments is even higher than for farmers as a whole. In many states where growing the covered crops is the dominant form of agriculture, government payments exceeded net farm income in the years 1999-2001. That is to say, farmers used a portion of their government payments to meet the expenses of growing the crops that were sold at prices below the cost of production. In the years surrounding that three year period, government payments ranged between 50 and 100 percent of net farm income. Without government payments, many producing areas would have faced a major financial crisis.
- Yet, as dependent as crop producers have become on government payments, their income levels do not generate excessive rates of return to labor or capital. Their income levels are comparable to the income levels they could receive from the market if they produced

[1] Harwood D. Schaffer, Agricultural Policy Analysis Center, made substantial contributions to this statement, but any errors of fact or logic remain the responsibility of the author.

only the output levels that would generate prices to cover a larger share of total production costs. Thus, payments replace income that should have come from the market. When viewed this way, it becomes clear that by providing output at well below the full-cost of production, crop farmers are passing-through the government subsidies to those that process or use crops. Input suppliers also benefit by selling the extra inputs that are used to produce more output than can fetch an economically-viable price.

- At the same time that farmers have become more dependent upon government payments, they have been accused of (1) using payments to overproduce; (2) driving prices downward as a result of this overproduction; (3) dumping commodities on the world market at below the cost of production. Interestingly, during the years following the passage of the 1996 Farm Bill in which prices were the lowest, 1998-2002, total production for the 8 major crops did not exceed 1994 production levels. Obviously additional considerations came into play.
- As the result of the accusations of dumping and several recent WTO decisions, some would see a future US farm policy that is shaped more by the need for trade compliance than by the needs of US farmers and ranchers. While the details of WTO negotiations put pressure on farm policy from one side, the US budget deficit puts the heat on from the other side. Continuation of the current set of policies, with only minimal changes, seems highly problematic.
- The current year ending stock levels of corn are such that they are able to meet normal needs of the marketplace. However, if in any year we had a production shortfall of 25 percent or more from the previous year's production, and/or had a dramatic increase in export demand like the early 1970's, US agriculture would have difficulty meeting the demands of both domestic and export customers. If the production shortfall were to precede or follow a similar shortfall in the Southern hemisphere, food supplies could be severely strained. In the wake of the New Orleans disaster, we in agriculture need to be thinking about our preparedness for worst case scenarios.

Farm Policy: Purpose Please

It is almost seems like we have lost track of why we have farm policy. Based on some of the discussion and rhetoric of recent years, one could come to believe that farm policy exists only because agriculture has the political muscle to extract billions of dollars from Congress. And that farmers receive large piles of money, not because it partially replaces severely depressed market receipts, but because the farm program provide a money spigot that the richest of farmers are addicted to. Furthermore, current farm program recipients, meaning primarily those that grow primary/program crops, are now the envy of other farm producers, many of which have marketing orders or previously have taken great pride in not being a part of a federal farm program.

Others say, if taxpayers are going to spend all those billions of dollars on agriculture, let's get farmers to do something for the payments. Translation: Shift taxpayer dollars away from commodity programs and toward whatever payment-basis is consistent with the policy objectives of the speaker. Still others say it is fine to provide income supports to farmer if that is what society wants to do. Just be sure that the payments have no strings attached. That way, farmers are free to plant any crop or no crop at all.

These possibilities all have one thing in common. They imply that commodity programs serve no real purpose, other than supply unearned income to farmers. Many have bought into that

conclusion and have given it an innocuous-sounding name: public choice. The basic idea is that farmers have developed the political power to persuade Congress to give them money, and they regularly use that power. The underlying assumption of the public choice interpretation of farm policy is that the aggregate agricultural market, like most other markets, will work just fine, especially if the government gets out of the way. That is, market adjustment will occur automatically in a free-market economy in response to changes in price. But as the following sections of our statement suggest, that assumption is highly suspect. The commodity program portion of farm policy has historically been in place because aggregate—not crop by crop but aggregate crop agriculture—does not self-correct in a timely fashion.

Total Quantity Supplied of Major Crops Unresponsive to Price

So why have we had special price and income stability programs for agriculture? Part of the answer is that taxpaying public has "too" successfully intervened in agricultural markets with investments in research, extension, Land Grant Universities and in other means that increase the productive capacity of agriculture. These productivity investments, coupled with private research, result in crop yields that consistently outpace growth in crop demands. This is a good thing. The sustained ability to maintain or expand the distance between agriculture's capacity to produce food and the demand for food is one of America's great accomplishments.

The problem arises because major crop producers tend to use every morsel of productive capacity that is made available to them. Other industries gauge their use of productive capacity to the quantity that can be sold at a profitable price. But since grain, soybeans and cotton are individually homogeneous and since no one farmer produces a sufficient quantity to influence the product's total supply; and therefore its price, farmers have no incentive to idle part of their acreage. They plant all their acreage all the time to something. Thus, aggregate crop output declines very little in the face of even drastic reductions in farm price levels.

Even when prices are below the farmer's variable cost of production, he may borrow-down his equity until his net worth is decimated or the bankruptcy court won't let him in the field. While a redundant tire plant would be permanently shutdown with assets transferred to another industry, bankruptcy of a farm's owner/operator usually results in no such transfer. The land remains in agriculture and another farmer, probably with superior management abilities, immediately brings the land back into production. Since the total acreage of major crops does not respond significantly to reduced price levels, crop agriculture does not and cannot "cure low prices with low prices" within a reasonable time frame.

Quantity Demanded of Total Agricultural Output Is Unresponsive to Price

Just as total crop supply tends not to adjust significantly to lower prices, neither does the quantity demanded. The demand for domestic food and total agricultural output is notoriously unresponsive to price. While the mix of food consumed and the demand for services attached to the food respond to price changes, the volume of food consumed in a country such as the U.S is largely invariant to the general price level or to changes in income. We do not go from three meals a day to five because of a dramatic drop in food prices or because our incomes have changed. This fundamental characteristic of food demand constrains the price elasticity of total domestic demand for agricultural output, even though industrial demand, livestock demand for feed and textile demand for cotton provide slightly more price responsiveness to total farm output than otherwise would be the case.

Total World Quantity Demanded Also Not Very Response to Price

This same principle generally applies to total world demand for food. People in Japan, European Union, and other major U.S. export-customer countries are no more likely than Americans to eat additional meals per day because food prices have dropped. Thus, total world food demand is price inelastic. Albeit somewhat less inelastic than in the U.S., since in countries with inadequate food supplies, a price decline may allow hungry consumers to purchase a larger quantity.

Export Demand Is More Price Responsive—But Not Much More

A country's export demand does not necessarily exhibit the same, extremely low, price responsiveness as total world demand. If five countries are the major sources of an agricultural crop for export, a country with a small share of the world export market may experience a relatively large increase in exports by dropping its price because other exporting countries do not choose to lower their price in response since the quantity of exports involved may be minimal. Of course, in an oligopolistic market structure, which has long characterized agricultural export markets, a price change by a dominant exporter usually results in "follow the leader" behavior among other exporters.

While much has been made about export's potentially higher price elasticity, a couple of things are clear. One is that in the short-run countries that have a large share of crop exports have trouble gaining much advantage in the export market by lowering their prices because all other export countries follow suite leaving each of them with little change in the export volume or changes their respective export shares. Thus, each country exports about the same but receives less revenue because of the lower price.

Secondly, for farmers to benefit from a highly price responsive export market, exports must be a large proportion of the country's total crop demand and/or the price responsiveness of exports must by very, very large. That is the case because farmers only benefit from a lower price if the TOTAL quantity demanded increases by larger percentage than the percentage reduction in price. Or, from the farmers standpoint, there must be longer term benefits that will greatly expand the country's exports over time such that the increased exports will more than compensate for the low price elasticity of, say, a relatively constant domestic demand.

Thirdly, for exports to increase sufficiently for a country's farmers to benefit, assuming that the extra exports would actually make total demand elastic, the additional exports can only come from two places: increased total imports or by wrangling exports away from other exporters. As we saw earlier, the first source is not very promising because, just like U.S. domestic demand, the world demand for agriculture's output is not very responsive to declining prices. Nor are the lower prices likely to persuade farmers and governments in importing countries to significantly reduce indigenous production. In addition to the considerations that cause U.S. farmers not to curb output significantly when crop prices decline, many, if not most, importing countries want to retain their agriculture's productive capacity for national food security or other reasons despite even a deepening cost disadvantage of domestic production compared to importing. Thus, it is unlikely that the size of the total export pie is going to dramatically expand with lower prices.

The other longer-term source of additional exports originating from a prolonged, say policy-based, price decrease is from other exporters. Now we are talking about such countries Canada, EU, Australia, Brazil, and Argentina; the countries that, like the U.S., consistently produce more bushels or tons of major crops than can be consumed domestically. To fix ideas,

consider how U.S. farmers and U.S. general farm and commodity organizations would react to a market or farm policy that professes to shrink the size of U.S. agriculture down to domestic needs. Neither are the farmers and farm groups in other exporting countries going to be willing to give up export markets. Even under high cost of production to price conditions, observed behavior suggests that our export competitors jealously guard their existing export markets and also covet the exports of others.

Although exports are generally recognized to be somewhat more elastic than domestic demand, lower prices have historically not brought forth the large increases in the quantity exported that many have expected.

Demand Grows With Population and Income—Yes But…

Traditionally, the most important domestic demand shifter for agricultural output is population. Changes in tastes and preferences and per capita incomes affect the consumption of individual commodities/foods but have relatively little impact on total demand.

On the other hand, changes in per capita income as well as population growth in importing countries are important world demand shifters, and by extension, export demand. But export demand tends to be fickle. It is influenced by weather in importing and exporting countries, general economic conditions and political decisions, all of which can take unexpected twists and turns. There only have been three times during last century when prolonged bursts in exports generated a prosperous major-crop agriculture. The source of those export bursts was not a sustained increase in per capita incomes of importing countries or some other permanent demand shifter. Rather, they occurred because of political decisions or circumstances surrounding the two world wars and the decade of the 1970s.

Putting it All Together—Here Is Why We Have Had Commodity Programs

The traditional explanation for agriculture's chronic price and income problems relates directly to characteristics of the crop agriculture's economy just discussed. Since farmers cannot affect commodity prices, they strive to reduce costs by adopting new technologies, much of which is publicly financed. As more and more farmers adopt a given new technology, output increases, and the aggregate supply expands. Typically, aggregate supply expands faster than total demand—so prices drop and crop inventories accumulate. The lower prices provide the signal that producers and consumers are expected to use to help correct the situation. The signal is there but the response is puny.

The lower prices do not cause a large enough increase in the quantity demanded by output-buyers nor sufficient reduction in the quantity supplied by farmers to reduce inventories and boost farm prices in a reasonable length of time. This is not what is supposed to happen. It happens because of the unique characteristics of food demand—a finite quantity is demanded whether prices are "high" or "low"—and aggregate supply—resources, especially land, tend to be used to grow something over an extremely wide range of prices—keeps crop agriculture from self-adjusting like other sectors.

The nicely sloped, i.e. relatively price elastic, demand and supply curves that appear in textbooks bear no resemblance to the aggregate demand and supply curves for crop agriculture. To represent aggregate crop agriculture's ability to adjust quantities as prices change, we need to pivot the textbook supply and demand curves so each is nearly vertical. Thus, in the nutshell, as traditionally viewed by agricultural economists, commodity programs were enacted to overcome

the market characteristics that result when exogenous forces cause a nearly vertical supply curve to shift to the right faster than a nearly vertical demand curve.

That Was Then—What About Now?

The New Era Euphoria and the 1996 Farm Bill

Overtime, and especially around the time that the 1996 Farm Bill was debated and passed, the conventional wisdom was that things are different now. The old characterizations of aggregate major-crop market structure were no longer valid. Agriculture was beginning a new era and the more free-market oriented farm bill would facilitate agriculture's full realization of its prosperous future. It was apparent that there were major adjustments in the each of elements that have long caused price and income problems in agriculture: a) the rate of shift in the aggregate crop demand curve relative to its supply, b) the responsiveness of the quantity demanded to price changes and c) the price responsiveness of supply.

New Era Expected

In the years prior to debate on the 1996 Farm Bill, China and a number of other Asian countries were experiencing unprecedented annual rates of per capita income growth, some in the double digits. Higher incomes in Asia were postulated to generate increased per capita expenditures on higher-value food items such as meat and poultry products. The increase in these products would increase the need for feed grains, primarily corn. The collective judgment of those that generate projections and policy baselines was that the livestock and poultry grain requirements would exceed the countries' grain production capacity. The mere size of China's population made it the central focus of the analyses. Analyses by the U.S. Department of Agriculture (USDA), Congressional Budget Office (CBO), the Food and Agricultural Policy Research Institute (FAPRI), and others projected substantial Chinese corn imports.

Figure 1 shows baseline projections made by FAPRI in 1996, the first year of the 1996 Farm Bill, through 2005. Similar baseline projections were made by CBO and the USDA. FAPRI showed Chinese net imports at 500 million metric tons by 2002. Rather than import 500 million tons, China exported 500 million tons in 2002.. Actual data through the year 2004 are shown plus FAPRI's 1999 projections. Note that in the1996 projection, China was expected to have net imports of nearly 800 million bushels of corn in 2005 which would be close to one-half the level of U.S. exports in some recent years.

Figure 2 shows how the projected growth in Chinese net imports during the mid-90s was translated into increased U.S. export demand for corn. FAPRI's baseline projections are shown but again, USDA's or CBO's 1996 baseline projections would show a similar upward path for U.S. corn exports. Actual U.S. corn exports are also shown through the year 2004 along with CBO's 2001 baseline projections of corn exports through 2010. Actual corn exports in 2002 were nearly 1 billion bushels less than the1995 projected quantity for 2002.

But the New Era Did Not Arrive

Clearly, agriculture did not enter a new grain export era in the mid-1990s. In retrospect, the misplaced optimism about China's need to import grain is an example of not taking into account the unique nature of food and agriculture.

Countries View Food as a Matter of National Security

Food is a national security issue in many if not most countries. Presented with the China's projected grains-needs for the decade ahead, the U.S. interpretation was for large and accelerating grain exports to China. China, on the other hand, may have viewed the projections as a wake-up call to jack up productive capacity through increased investments in agriculture and alliances with multinational agribusinesses.

Also, especially in the case of China, data availability and accuracy issues contribute to projection difficulties. For example, it was determined at the beginning of this decade that China had maintained huge grain stock levels, orders of magnitude larger than analysts had been using for years in their supply and demand tables for China. The fact that China maintains grain stock levels large enough to satisfy many months' worth of use, speaks volumes about their general commitment to food security/self-sufficiency issues.

While 95 percent of the world's population lives outside the U.S., that does not mean that the U.S. can view the rest of the world as never-ending reservoir of willing export customers. Even as per capita incomes and availability to pay increase over time, so does the agricultural productive capacity of importing countries and our export competitors.

American agriculture is affected by outward expansion of two supply curves. One is the domestic aggregate supply curve, fueled by technologies that increase crop yields and productive capacity. The other is the foreign aggregate crop supply curve that is shifted rightward by expansion in planted area of productive cropland in Brazil and several areas of the world as well as yield enhancing technologies. When the foreign supply curve shifts to the right faster than foreign demand, U.S. exports stagnate. Except for weather induced gyrations and periods in our history when political decisions or events provided a multiyear stimulus to exports, there are relatively long periods of time in which major-crop export demand remains flat or increases at a slow rate.

Indeed, in the case of major crops, rather than being the engine that drives U.S. agricultural prosperity, exports are often part of the reason that total crop demand expands more slowly than supply.

Exports Flop—Can Ag Now Pull Itself Up by It's Bootstraps?

Okay, so export demand did not grow at the rate that was expected following the passage of the 1996 Farm Bill. If agricultural producers and consumer respond to the lower prices by sharply cutting back on the quantity supplied and/or greatly increasing the quantity demanded, the market would self-correct, easily overcoming a lack of growth in exports or any other exogenous shock that might beset agriculture.

Is Agriculture More Price Responsive Now?

There are a number of reasons for believing that crop agriculture might be more price responsive now than in decades past. For one thing, most of the inputs used in crop production are supplied from outside the farm and must be paid for. Items such as fertilizers, herbicides, fuel and seed are now purchased from off-farm sources rather than depending on livestock manure for fertilizer, using homegrown oats and hay to fuel the real horsepower, using cultivators and hoes to eliminate weeds and using seed saved from last year's crop. Also, the number of commercial farmers had dropped from 2 million to a few hundred thousand farmer/businessmen. For these and other reasons—even before the 1996 farm bill was passed—it seemed reasonable to expect farmers to be more responsive to general farm price levels than when farm programs

were first introduced. But with the passage of the 1996 Farm Bill expectations were even higher. With the bill's planting flexibility and decoupled payments, farmers could finally plant for the market, adjusting crop mix as needed and if all prices are in a tailspin, reduce total production.

Figure 3 displays data on total acreage of corn, soybeans, wheat and cotton, and on three measures of prices or measures of per unit revenues for the four crops for crop years 1996 to 2000. Data for all variables are converted to an index with 1996=100. Acreage for the four major crops remained nearly constant over the period. In fact, acreage in crop year 2000 slightly exceeded acreage in the first year of the 1996 Farm Bill, 1996. This constancy of acreage occurred despite a 40 percent drop in the index of prices for the four crops between the 1996 and 2000 crop years.

It can be argued that the loan rates are the supply inducing prices since farmers receive loan deficiency payments (LDP) to offset price levels below loan rates. When loan deficiency payments are included, average per unit revenue for the four crops shows a decline of 30 percent. While economists usually argue that fixed contract payments have no influence on output decisions, many farmers and farm groups believe market prices and government revenue are perfect substitutes. If, in addition to market price and loan deficiency payments, the per unit revenue equivalent of fixed production contract or AMTA payments and emergency Marketing Loss Assistance (MLA) payments are added, then revenue per unit declined by 22 percent between 1996 and 2000.

So depending on which per unit revenue measure one believes that governs farmers' acreage decisions, "prices" have declined by 40 percent, 30 percent or 22 percent, but the crops' total acreage has held constant. The corresponding supply curve doesn't just approach vertical, it is vertical. Adding in barley and oats would show only a slight reduction in total acreage. Figure 4 extends the price and acreage measures 4 more years. Basically, acreage remained unchanged during the 8 year period of declining and increasing prices.

But Doesn't Planting Flexibility Mean No Need To Plant At All?

Planting flexibility has enhanced farmers' ability to vary crop-mix in response to changes in relative crop prices (or per unit revenues). But freeing farmers to "plant for the market" did not result in a significant reduction in total crop output when prices plummeted.

Analysts, farmers, and farm groups who vigorously argued that farmers would reduce production as needed in response to market price signals are now saying that the reason farmers did not cut back is because, with government payments added in, farmers' per unit revenues are above variable costs of production. That explanation seems to suggest that the aggregate crop supply curve is kinked at the price equal to the per unit variable cost—vertical for all prices above the variable cost and with a, presumably, highly elastic slope below that price. But economic theory says producers should not produce when the price is below the variable cost of production. Thus, following economic theory, the implied supply curve would end at the "kink." So, are those that have believed in the past that farmers would cut back aggregate output as price declines now logically implying that the supply curve is perfectly inelastic?

Actually, anyone who has been in the midst of farmers for any length of time knows that in a given year the aggregate crop supply curve can extend below the variable cost of production. A farmer will use up his (or her) equity, work 40 hours off the farm or do whatever he can to stay in agriculture as long as possible. If he does go bankrupt, production continues under a new operator whose supply curve may exist at even lower prices.

Contrary to the expectations of many, we have learned, once again, that the aggregate crop supply curve continues to be extremely price unresponsive. While a list of distracting side issues can be brought into the discussion, the fact remains that a 20 to 40 percent drop in the crop price level resulted in no reduction in the total acreage of the four most important field crops.

Does Production Go Down Because Farmers Cut Back on Input Applications?

Farmers adjust their expenditures on inputs that have little or no affect on yields. Reducing per acre use fertilizer, pesticides, and seed tends to compromise per acre revenue by more than any reductions in cost. Farmers may alter the mix of crops in favor of less input-intensive crops when faced reduced prices, but it is almost universally penny wise and pound foolish to scrimp on a crop's most important yield-determining inputs. Total production changes little.

Well, Has Demand Become More Price Responsive Then?

If aggregate crop demand has become sufficiently price responsive, so that buildups in crop inventories disappear quickly when prices drop, then the markets could self-correct from the demand side. Such increased price responsiveness compared to decades earlier could come from a more price responsive food/feed demand, the emergence of a significant industrial demand and/or because of increased reliance on exports. The export market receives the most attention as the opportunity for a price responsive market. Actually, industrial demand, such as using corn to make ethanol, may be one of the most price responsive crop demands, but it is not large enough nor price responsive enough to turn total demand elastic. The increased concentration of the livestock industry has likely made domestic feed demand less rather than more price responsive. High fixed investments and long-term contracts in the poultry and hog industries tend to diminish their response to changes in corn and soybean meal prices.

That leaves exports as the last hope for increases in the quantity demanded following a price decline. As already mentioned, there are two sources of possible export increases for the U.S. following a decline in U.S. crop prices. One is selling additional exports to importing countries. The other is swiping exports from our competitors.

The probability of successfully increasing aggregate crop exports to importing countries—solely because of lower prices—is typically very low for two reasons. First, price has relatively little to do with how much our major importing countries consume of food/agricultural products. If our import customers are rich enough to be a major cash-paying customer, they are probably rich enough to have a reasonable well-fed populace that is unresponsive to changes in food/agricultural prices.

Secondly, the fact that a country is a significant importer of U.S. agricultural products does not mean the country has no interest in producing as much of its own agricultural products as it reasonably can. Our experience and common sense tells us that food security and other non-price issues are extremely important to many countries. Hence, savings that an importing country may achieve by additional long-term imports of lower-priced food/agricultural products may not overcome the country's feeling of "loss" in food self-sufficiency/security from diminishing domestic agricultural production.

Our export competitors seem a more promising source of increased exports following a sustained decrease in U.S. crop prices. Since they produce more of the export crop than is needed

domestically, economic considerations may be of primary importance in setting acreage and production levels.

Export Competitors' Acreage Response to Lower Prices

Let's look at the how foreign acreage changed after 1995. According to USDA's PS&D database, total foreign harvested acreage for the eight major crops increased by nearly 40 million acres between 1995 and 1996; that is, between the year before the 1996 Farm Bill and the first year of the bill. After 1996, foreign acreage trended steadily downward and by 2000 was 15 million acres below its pre-1996 Farm Bill level (Figure 5). These data are in line with what one might expect. Acreage went up in response to the increased prices of 1995 and has declined with the lower prices of the last three years to below it level before the 1996 Farm Bill. This bodes well for expanding our exports to replace the reduced foreign production. But what if we focus on acreage changes for those countries that tend to be our major export competitors?

Figure 6 shows harvested acreage for the eight major crops for our nine major competitors: Canada, Argentina, Brazil, EU-15, Australia, Pakistan, India, Thailand, and Vietnam. Thirty of the nearly 40 million acre increase in 1996 foreign harvested acreage came from our competitors. Our competitor's acreage remained constant in 1997, but then increased significantly each of the next three years, increasing by 11 million acres between the relatively low-price years of 1999 and 2000. The acreage reductions occurred in countries that neither are major export competitors nor are currently sizable markets for U.S. agricultural exports.

Export-Driven Farm Policy Fails to Deliver Exports

Given all the considerations discussed, generally how have exports performed during more export-oriented farm policy of the last quarter century and specifically how have exports fared during the declining prices of the last years? Figure 7 shows U.S. experience with domestic demand and export demand for all grains and seeds as defined by USDA's PS&D database since 1961. The data are shown in index for with 1979=1.0. Also, for comparison U.S. population is also shown indexed so 1979=1.0. This figure shows a number of things. The 1970s multi-year burst in exports—the last of the three multi-year ramp ups in crop exports during the twenty century, is evident as is the steady upward growth in domestic demand since the mid-70s. In fact, domestic demand, which includes industrial as well food and feed demands, has increased faster than U.S. population since 1979.

Note especially what has happened to export demand since 1979. By 1983, exports of all grains and seeds had fallen to about 80 percent of its 1979 level. Exports have varied around the 80 percent mark ever since. While there are many factors influencing grain and seed exports, clearly policies to ensure that U.S. is not pricing our grains "out-of-the-market" beginning with the reduction of loan rates in the 1985 Farm Bill and culminating with the replacement of non-recourse loans with marketing loans in the 1996 Farm Bill have not conquered a two-decade stagnation of grain and seed exports.

Of course, had support prices not been lowered and if the marketing loans had not been introduced, exports would likely have been somewhat lower yet during this period. But driving down prices to below the full-cost of production is of no help to farmers if export volume and market profitability do not improve, even after several years have past.. Clearly over the two decade period, which includes a wide range of macroeconomic conditions, export quantities are nearly the same regardless of whether prices are "high" (like the mid-1990s, for example) or "low" (like 3 years later).

A commodity by commodity analysis shows the same pattern. Corn for example shows a steady growth in domestic demand since the mid-70s, increasing from 4 billion bushels in 1976 to 8.7 billion bushels in 2004 while exports hover under 2 billion bushels for the full 25-year period. Soybeans show some growth in exports during the last 25 years and soybean exports appear to be more price responsive than the exports of corn and other grains. In the case of wheat, exports has dropped sharply from the levels of the 1970s and early 1980s. At its maximum in 1981, 1.7 billion bushels of wheat were exported. Wheat exports have hovered around 1 billion in recent years.

And The Conclusion Is…

The shift toward export oriented policies, beginning with the 1985 Farm Bill and before, have not successfully increased major-crop exports and thus have failed to boost farm income through increased market receipts. Unless increasing exports is a goal unto itself—a volume maximization goal that no economist would ever want to sign on to—there was little hope of success from the beginning.

Reasons for Failed Export-Oriented Policy Remain Today

The list of negative conditions includes: a) a total world demand for aggregate agricultural products, while likely less price inelastic as U.S. domestic demand, is highly inelastic nonetheless, b) an oligopolistic international grain market structure, c) domestic demand represents a large share of total demand for most U.S. major crops so the export demand price elasticity must be extremely large to offset the highly inelastic domestic demand, d) importing countries generally prefer to import less rather than more agricultural products so a lower price tends to neither materially increase consumer demand or reduce indigenous production, and e) our export competitors are as much into providing for the export market in long haul as the U.S. so lower prices tend to have minimal impact on total area planted to major crops.

Policy Implications

The 1996 Farm Bill would have been heralded as a stroke of genius had crop exports increased at the rates projected at the time the bill was passed. Prices would have been strong, farmers would have experienced increased net incomes from greater market receipts plus government payments, agribusinesses would have their large volumes of inputs to sell and outputs to process and transport, and taxpayers would have a decline in government program expenditures over the length of the bill.

But we did not enter a new era for agriculture based on accelerated export growth. That too would be okay if agricultural markets had truly overcome the lack of price responsiveness that has plagued aggregate agriculture for four score plus years. It turns out the supply and demand for the total of major crops still respond very little to reduced prices.

But now we know legislation like the 1996 Farm Bill does not work. Are we going to continue to use post-hoc-cleanup-the-mess-after-the-crash type farm and special legislation or are we going to recognize, even celebrate, our sustained tendency, because of continuing and largely publicly supported new technologies, to expand agricultural output faster than it can be utilized at profitable prices? Are we going to recognize that promising that export growth “will make it all better real soon now” demolishes our credibility? Can we fashion a policy that encourages innovation and technological advances but, borrowing from the perspective of another industry, does not idly standby while output-increasing new technologies are applied to

all an industry's plants for each of three eight-hour shifts for every day of the year despite prices that have been driven to below the cost of production? Can we look to other areas besides exports for potential demand growth?

The commodity portion of a farm policy that recognizes the nature of aggregate major-crop markets should include a number of key elements. With nearly vertical supply and demand curves, random shifts due to weather-based yield fluctuations in the U.S. and/or abroad can cause wide price fluctuations. A farmer-owned-buffer stock program can be used to truncate the low and high tails of the price distribution. Even moderate reductions in short-term price fluctuations would ensure that the U.S. crop industry is a dependable supplier to domestic livestock producers and other domestic and international grain and oilseed customers.

Recognizing that public investment in "agricultural overproduction capability" is a good thing, mechanisms should be put in place to hold excess productive capacity in reserve in various short-term and longer-term forms. Recognizing that domestic demand, not export demand, has been the source of demand growth for the last quarter century, policy incentives and market development expenditures should focus on existing and potential domestic sources of demand growth. Use of major crops to produce industrial and energy products already represents a significant part of demand growth for major crops. New crops that have potential to provide energy feedstock to electric utilities, for example, could provide farmers with an alternative to major crops which could provide a new income source and, since some major crop acreage would be displaced, provide higher prices and incomes for major crops.

Concluding Remarks and Summary

The outcome of the 2007 Farm Bill will be greatly affected by concerns about the federal deficit and the WTO pressure to eliminate agricultural subsidies. While these two issues may seem to be unrelated, one domestic and the other international, they in fact stem from a common cause: low crop prices. If crop prices in the 1997-2004 period were at the same level that they were in early 1996, the intensity of concern over each of these factors would be much less.

Low market prices for the eight major US crops caused spending on the farm program to zoom to over $20 billion a year in the 1997-2004 period; recently payments to farmers have settled back into the mid-teens. Much of the time over the last nine years, crop prices have been well below the cost of production, however defined. As crops are sold into export markets at low prices, farmers and governments around the world accuse us of dumping our excess production on international markets. As a result we have seen a growing chorus of those who, as a part of WTO negotiations, are calling for the elimination of all subsidies in the US and other developed countries.

Recent changes in farm policy occurred because there was an across-the-board shift in how people thought about the operation and prospects for the agricultural sector, particularly crop agriculture. Going into the 1996 Farm Bill, it was assumed that (1) the agricultural sector behaves more like other economic sectors than it did when farm programs were first adopted in the 1930s; (2) exports are the key to a prosperous US agricultural sector, after all 95 percent of the consumers of food live outside the US; and (3) government farm programs are the problem, not the solution, and if the government would get out of the way and allow markets to work, US agriculture would be on the road to a market-driven prosperity. But these assumptions are in direct conflict with the reality that has confronted agriculture since that change in thinking was codified into legislation in 1996. These assumptions also are in direct conflict with what major-crop agriculture has experienced for most of the last century.

There are certain things about the nature of agriculture that are as true today as they have been for nearly a century. Thus, a change in farm policy, predicated on a fundamental but phantom switch in the nature of agriculture, is unlikely to—and did not—generate the predicted or desired results. The long-standing nature of agriculture and associated implications can be summarized quickly.

Food and agriculture are different. In other economic sectors, low prices stimulate two responses—consumers increase their purchases while manufacturers reduce production quickly returning to industry to profitability. Low food prices, however, do not stimulate consumers to increase their food intake from three meals to five meals a day. Similarly, it is not in the best interest of individual crop farmers to measurably reduce their acreage or their use of yield-determining inputs in the face of lower prices. Any income they receive above the variable cost of production can be put toward the fixed costs.

Promising an export-driven prosperity for crop agriculture is an audience pleaser but the odds are against it. US farmers have enjoyed an export driven prosperity three times in the last century—WWI, WWII, and the mid-to-late 1970s—and none of them were triggered by US farm policy instruments. These periods of surging exports lasted a total of no more than 14 years out of the last hundred. Most countries view their domestic food production in the same way that US residents view the military, it is a matter of national security.

Nations that have an adequate amount of arable land typically prefer to grow their own staples rather than become dependent on imports. The level of US exports of crops like corn in a given year is more a function of production variations in other nations around trend than it is a function of price. It is foolish to think that importing countries will embrace opportunities to reduce production of staples in their countries because they can buy staples so-many cents a bushel less from the US. It is also unrealistic to expect US export competitors—some of which are using agriculture as a development vehicle—to unequivocally hand over export markets to the US. For these reasons and because food and agriculture of other countries share the same unique characteristics as the US, unfettered free trade in food and agricultural—WTO driven or not—will be much harder to achieve than for other sectors.

In my view, price responsiveness is the basic issue that must be considered when evaluating the effectiveness of alternate farm bill proposals. If the lack of price responsiveness of aggregate agriculture is not identified as the fundamental problem motivating the policy proposal, the proposal may achieve certain policy objectives but not necessarily a more stable market environment for production agriculture.

Agricultural productive capacity is ever expanding, typically at a pace that exceeds domestic demand. Under government farm programs in effect prior to the adoption of the 1996 Farm Bill, the non-recourse loan rate set an effective floor on program-crop prices by taking production out of the commercial market and placing it into government storage. With the extension of Loan Deficiency Payments (LDP) to crops like corn, soybeans, and wheat, prices could fall below the loan rate, farmers could collect the difference between the posted county price and the loan rate while still retaining possession of the crop that could then be sold at prices well below the cost of production.

U.S. farm policy has been criticized in the past as market distorting because of the “high” levels at which price supports were set in certain periods. Of course, from an economic theory perspective, market distortions resulting from policy-caused “low prices” are equally troublesome. The combination of using LDP/MLGs and the elimination of other program

instruments may have caused program-crop markets to be more distorted in recent years than in previous times under other configurations of commodity programs.

A comparison of corn prices before and after the implementation of the FAIR Act shows that for the same year-ending stocks-to-use ratio, prices in the post 1996 period were 34 cents a bushel lower than they were when government policy put a floor on corn prices. Before the adoption of the FAIR Act, government policy worked in a manner so as to ensure that farmers received the bulk of their income from the marketplace and at the same time maintained lower government costs. With a floor on crop prices, other nations had little reason to accuse the US of dumping.

As the process of thinking about the shape of the 2007 Farm Bill gets underway, a new vision is needed for agricultural commodity policy. This new policy vision needs to be based on a clear set of principles. Here is my list:

- Farmers should receive the bulk of their income from the marketplace and not the government. Commodity programs should not use payments to crop farmers to launder subsidies for integrated livestock operations, agricultural commodity processors and importers by facilitating purchases of feed and food ingredients at substantially below full cost. Neither should commodity programs enable agribusinesses to benefit from selling extra seed, fertilizer, pesticides and other inputs that result in production levels that are too large to fetch economically-viable market prices.
- Agricultural policy needs to be based on a clear understanding of the unique characteristics of the marketplace rather than ideology. Producers produce and consumers consume about the same amount of total agricultural output with little regard to changes in prices. Market self-correction can only occur if producers and consumers react to market signals—changes in prices. Also, betting on exports to bail-out crop agriculture is a low-probability bet at best.
- US farm policy should not contribute toward the dumping of agricultural products on international markets.
- The policy must be affordable.

Figures

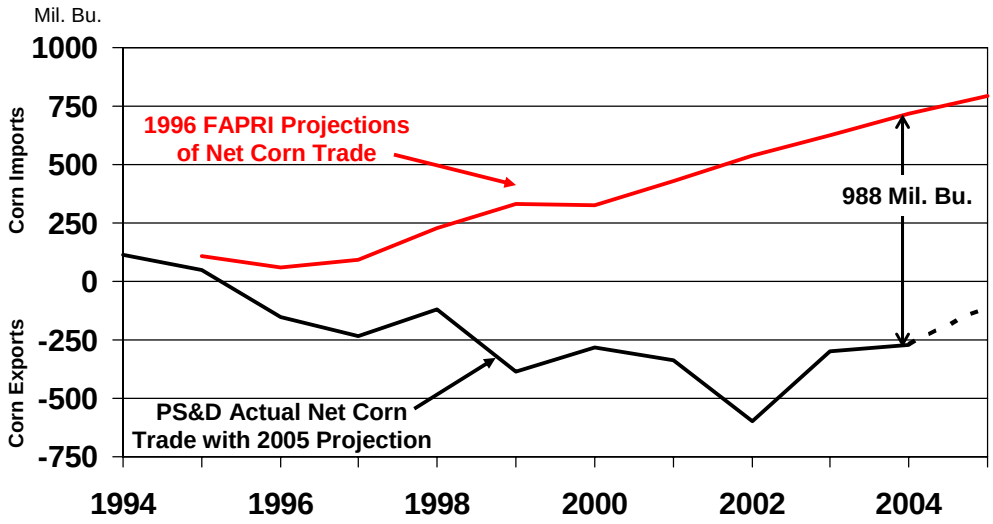

Figure 1. 1996-2005 FAPRI baseline projections made in 1996, the first year of the 1996 Farm Bill. Actual data through the year 2004 are shown with a projection for 2005. China was expected to have net imports of nearly 800 million bushels of corn in 2005 which would be close to one-half the level of U.S. exports in some recent years. In 2004 the gap between China's actual exports and the projected imports amounts to 988 million bushels.

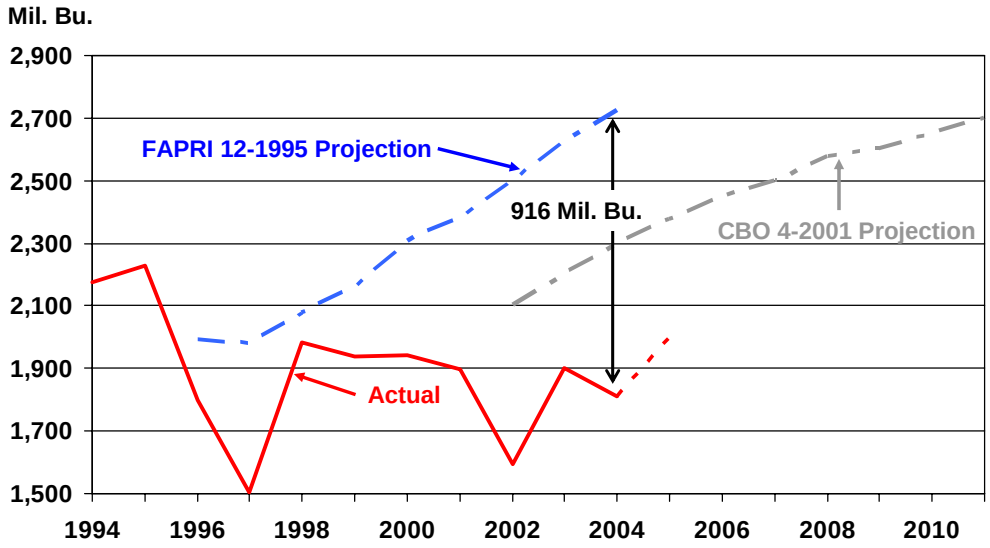

Figure 2. 1996-2004 projected growth in US corn exports compared to actual exports. This figure shows how FAPRI translated the projected growth in Chinese net imports into increased U.S. export demand for corn. As was also true for the China projections, USDA's and CBO's 1996 baseline projections showed an upward path similar to FAPRI's for U.S. corn exports. Actual corn exports in 2004 were nearly 918 million bushels less than FAPRI's 1995 projected quantity for 2004.CBO's 2001 baseline projection shows a parallel shift in the expected trend but displayed continued export optimism.

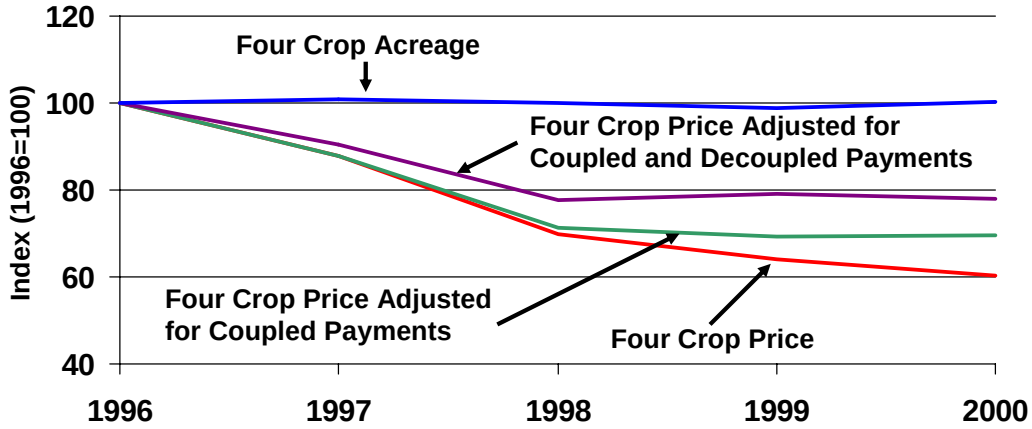

Figure 3. Indexed total acreage of corn, soybeans, wheat and cotton, and three measures of prices or measures of per unit revenues for the four crops for crop years 1996 to 2000. 1996=100. Acreage for the four major crops remained nearly constant over the period despite a significant decline in price. Source: Computed from USDA data.

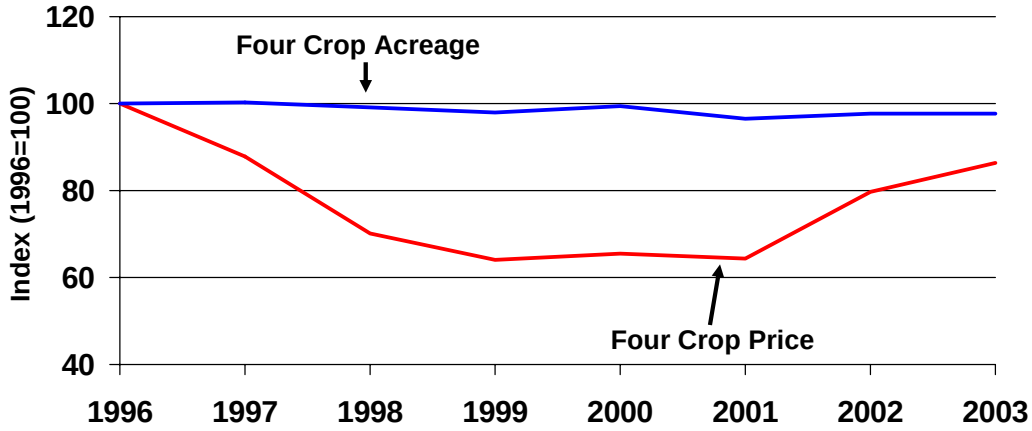

Figure 4. Indexed total acreage of corn, soybeans, wheat and cotton, and the four crop price for crop years 1996 to 2003. Basically, acreage remained unchanged during the 8 year period of declining and increasing prices. Source: Computed from USDA data.

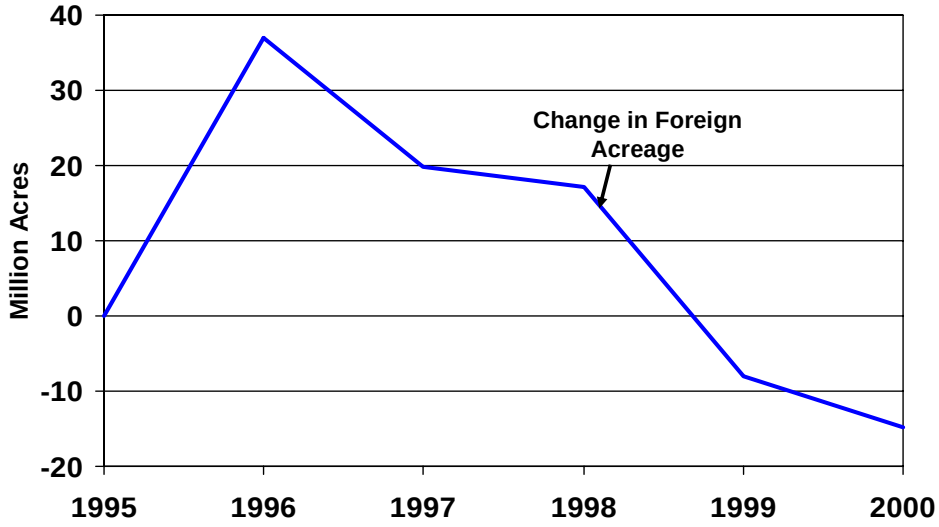

Figure 5. 1995-2000 change in foreign acreage for the 8 major crops. According to USDA's PS&D database, total foreign harvested acreage for the eight major crops increased by nearly 40 million acres between 1995 and 1996; that is, between the year before the 1996 Farm Bill and the first year of the bill. After 1996, foreign acreage trended steadily downward and by 2000 was 15 million acres below its pre-1996 Farm Bill level.

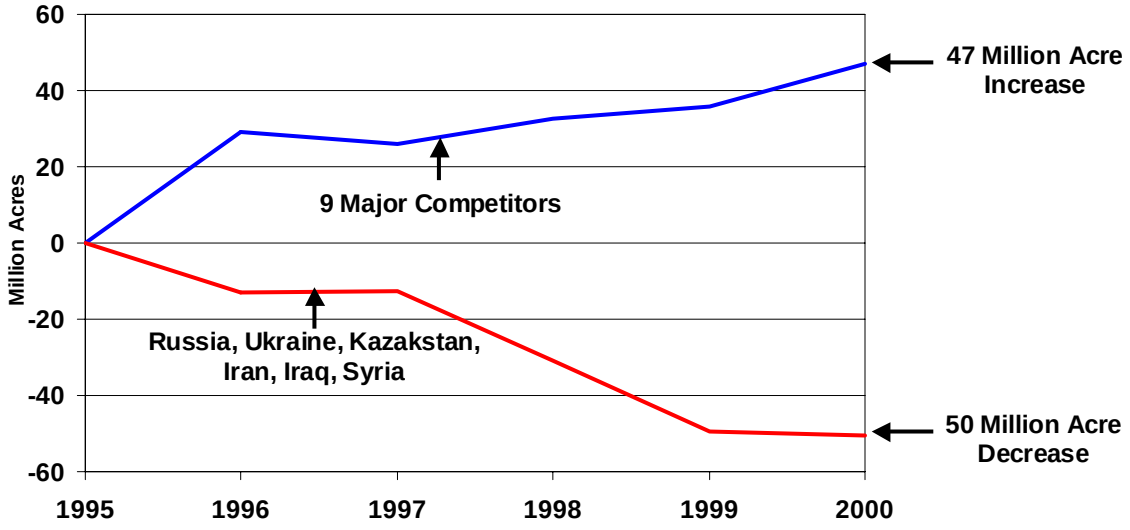

Figure 6. 1995-2000 harvested acreage for the eight major crops for US's nine major competitors: Canada, Argentina, Brazil, EU-15, Australia, Pakistan, India, Thailand, and Vietnam. While total foreign 8 crop acreage declined by nearly 15 million acres by 2000, the US's nine major competitors increased their acreage by 47 million acres. The largest decline in acreage in that period came from Russia, Ukraine, Kazakhstan, Iran, Iraq, and Syria, amounting to 50 million acres. Source: USDA PS&D.

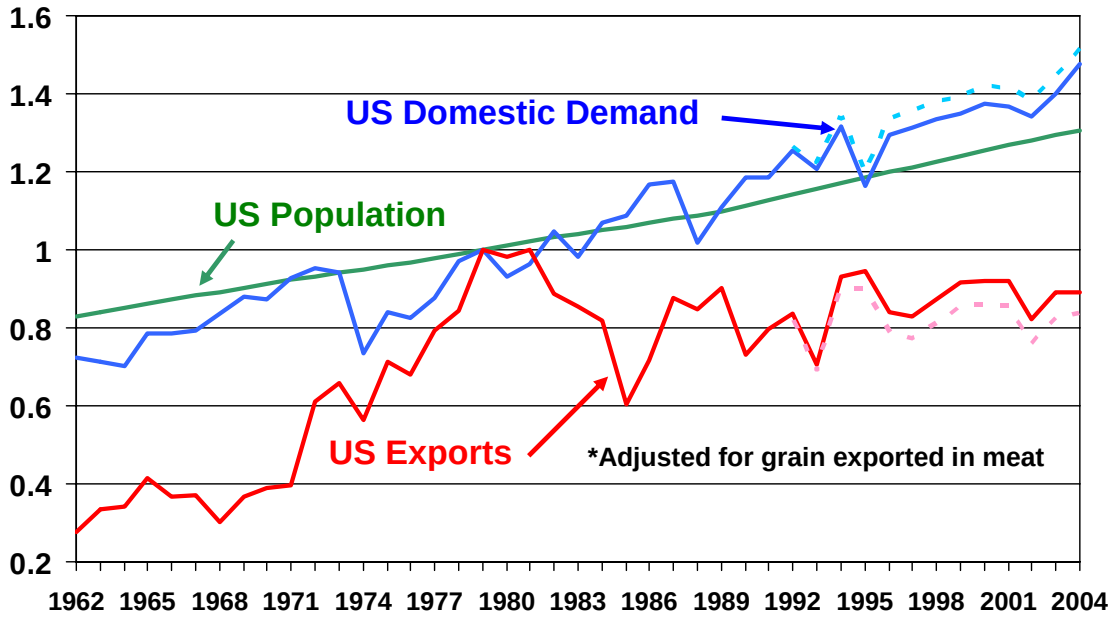

Figure 7. Index of 1962-2004 US population and domestic and export demand for all grains and seeds as defined by USDA's PS&D database, 1979=1.0. The dotted lines show demand data reported by PS&D unadjusted for grain and oilseeds exported in meat. The 1970s multi-year burst in exports—the last of the three multi-year ramp ups in crop exports during the twenty century, is evident as is the steady upward growth in domestic demand since the mid-70s. In fact, domestic demand, which includes industrial as well food and feed demands, has increased faster than U.S. population since 1979. Clearly export demand has not been the driving force in US major-crop markets in the last quarter century despite price decreasing policies designed to make US bulk commodities more competitive in the world marketplace.